



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/928,761	08/13/2001	Claus G. Lugmair	1012-103 (2000-048)	7561
7590 03/24/2004			EXAMINER	
Eric M. Dobrusin Dobrusin & Thennisch PC Suite 311 401 South Old Woodward Avenue Birmingham, MI 48009			LUDLOW, JAN M	
			ART UNIT	PAPER NUMBER
			1743	
DATE MAILED: 03/24/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/928,761	Applicant(s) LUGMAIR ET AL	
	Examiner Jan M. Ludlow	Art Unit 1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-26 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 8-26 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/2002, 3/2003</u> . | 6) <input type="checkbox"/> Other: ____. |

Art Unit: 1743

1. Claims 22-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

2. In claim 22, "upstream" is unclear because no flow direction has been defined, and as disclosed, flow is bi-directional. In claim 22, lines 4-5, reference to a chemical gradient is unclear because no step of producing a chemical gradient is claimed and it is therefore unclear what the scope of the claim is.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

5. Determining the scope and contents of the prior art.
6. Ascertaining the differences between the prior art and the claims at issue.
7. Resolving the level of ordinary skill in the pertinent art.
8. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bjornson.

11. Bjornson teaches filling 1-10ul capillaries by capillarity. The capillaries are hydrophilic and may include a hydrophobic stop junction. See, e.g., col. 18, lines 6-53. Fluid may be dispensed to an array of wells 712 by applying pressure (col. 27, lines 40-67).

12. Bjornson fails to explicitly teach an embodiment with capillaries filled to the hydrophobic stop junction having the fluids delivered by pressure.

13. It would have been obvious to fill the capillaries to the stop junction because Bjornson teaches that the volume drawn is carefully controlled by the diameter and length of the capillary, and in that a stop junction stops flow, it would have been obvious to one of ordinary skill that the capillaries would fill to the stop junction. It would have been obvious to dispense with pressure because Bjornson teaches to do so. It would have been obvious to use different size capillaries in order to control volume by capillary size as taught by Bjornson. It would have been obvious to make the capillary ends at the same level in order to make the capillaries of the same length as shown in Figure 3.

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 1743

15. Seubert teaches a capillary formed of two hydrophilic capillaries joined by a hydrophobic section (Fig. 16), but fail to teach or suggest the instant method.
16. Sundberg teaches capillaries 34 filled by gravity and capillarity. Hydrophobic coating 58 helps prevent smearing of fluids across the bottom of the capillary plate. The capillaries can hold under 10 microliters and pressure is used to eject droplets. (See, e.g., col. 6, lines 6-7; col. 8, lines 1-35).
17. Ayres and Coleman each teach manual pipets that fill to a controlled volume based on the placement of hydrophobic and hydrophilic surfaces.
18. Hunter teaches hydrophilic capillaries 42 with hydrophobic ends 40. The capillaries can be filled by capillarity, but no pressure method of ejecting to a substrate is disclosed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jan M. Ludlow whose telephone number is (571) 272-1260. The examiner can normally be reached on Monday-Thursday, 11:30 am - 8:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1743

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jan M. Ludlow
Primary Examiner
Art Unit 1743

Jml
March 22, 2004